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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/795,879
Filing Date: March 08, 2004
Appellant(s): CARVER ET AL.

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EXAMINER'S ANSWER

This is in response to the appeal brief filed August 2, 2010, appealing from the Office action mailed March 1, 2010.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

Claims 1, 3-10, 13-34, 48-51, 53-58 and 69-71.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has the following comment on the appellant's statement of the grounds of rejection to be reviewed on appeal:

Only the Ground of Rejection of claims 1, 3-10, 1334, 48-50, 53-55, 57-58 and 69-71 appellant's stated "Grounds of Rejection to be reviewed on Appeal" only lists a single Ground of Rejection under 35 U.S.C. 103(a) (section 13 of the appealed office action), although there are the following grounds of rejection: as set forth in section 5 of

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said appealed office action, claim 51 is rejected under 35 U.S.C. 112, first paragraph; claim 53 is rejected under 35 U.S.C. 112, first paragraph, as set forth in section 6 of the appealed Office action; claims 69-71 are rejected under 35 U.S.C. 112, first paragraph, as set forth in section 7 of the appealed Office action; all rejections under 35 U.S.C. 112, first paragraph being due to inadequate written description resulting from the introduction of new matter; claim 51 is rejected under 35 U.S.C. 112, second paragraph as being indefinite, as a result of the new matter introduced in said claim 51, as set forth in section 8; claim 53 is rejected under 35 U.S.C. 112, second paragraph, as set forth in section 9; claims 55 and 56 are rejected under 35 U.S.C. 112, second paragraph, as set forth in section 10 of the appealed office action; claims 69-71 are rejected under 35 U.S.C. 112, second paragraph, as set forth in section 11; and claim 56 is rejected under 35 U.S.C. 112, second paragraph, as set forth in section 12; and claim 56 is rejected under 35 U.S.C. 103(a) as being unpatentable over Machado and Minshall as applied to claim 55 and further in view of Forterre (US 5,131,868), as set forth in section 14 of the appealed Office action.

Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

WITHDRAWN REJECTIONS: only the rejection under 35 U.S.C. 112, second paragraph, of claim 56, as set forth in section 8 of the appealed Office action (N.B.: all other grounds of rejections are maintained).

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

5,245,641	MACHADO ET AL.	09-1993
5,131,868	FORTERRE	7-1992
WO00/72326 A1	MINSHALL ET AL.	11-2000

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Only the ground of rejection under 35 U.S.C. 103(a) of claims 1, 3-10, 13-34, 48-50, 53-55, 57-58 and 69-71 as being unpatentable over Machado et al (US 5,245,641) in view of Minshall et al (WO 00/72326 A1) is being appealed.

As mentioned above, as set forth in section 5 of said appealed office action, claim 51 is rejected under 35 U.S.C. 112, first paragraph; claim 53 is rejected under 35 U.S.C. 112, first paragraph, as set forth in section 6 of the appealed Office action; claims 69-71 are rejected under 35 U.S.C. 112, first paragraph, as set forth in section 7 of the appealed Office action; all rejections under 35 U.S.C. 112, first paragraph being due to inadequate written description resulting from the introduction of new matter;

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claim 51 is rejected under 35 U.S.C. 112, second paragraph as being indefinite, as a result of the new matter introduced in said claim 51, as set forth in section 8; claim 53 is rejected under 35 U.S.C. 112, second paragraph, as set forth in section 9; claims 55 and 56 are rejected under 35 U.S.C. 112, second paragraph, as set forth in section 10 of the appealed office action; claims 69-71 are rejected under 35 U.S.C. 112, second paragraph, as set forth in section 11; and claim 56 is rejected under 35 U.S.C. 112, second paragraph, as set forth in section 12; and claim 56 is rejected under 35 U.S.C. 103(a) as being unpatentable over Machado and Minshall as applied to claim 55 and further in view of Forterre (US 5,131,868), as set forth in section 14 of the appealed Office action.

The Honorable Board's attention is drawn to the rejections under 35 U.S.C. 112, first and second paragraphs, of claim 51 (sections 5 and 8 of the appealed Office action), claim 53 (sections 6 and 9 of the appealed Office action), and claims 69-71 (sections 7 and 11 of the appealed Office action), as well as the rejections under 35 U.S.C. 112, second paragraph of claims 55-56 which are evidently not being appealed. Only the rejection of claim 56, under 35 U.S.C. 112, second paragraph as set forth in section 12 of the prior Office action, which is not being appealed either, is withdrawn by examiner.

THE FOLLOWING IS A REPRODUCTION OF THE GROUNDS OF REJECTION AS SET FORTH IN THE APPEALED OFFICE ACTION, WITHOUT ANY INTENDED CHANGE EXCEPT FOR THE AFOREMENTIONED WITHDRAWAL OF THE REJECTION UNDER 35 U.S.C. 112, SECOND PARAGRAPH, OF CLAIM 56 AS SET

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FORTH IN PARAGRAPH 12 OF SAID APPEALED OFFICE ACTION, AND EXCEPT FOR NUMBERING OF PARAGRAPHS NECESSITATED BY PARAGRAPHS IRRELEVANT FOR THE APPEAL.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. ***Claim 51*** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation dependent upon claim 48 in which in apparent addition to the rods recited in claim 48 it is recited that the apparatus further comprises "at least one solid rod disposed between the adjacent pairs of the tubes" has not support in the original specification including original claims, because no solid rod other than those and as recited in dependent claim 51 is supported by a written description, and thus forms new matter.

2. ***Claim 53*** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation "wherein the first and second rods

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are welded into the recesses” has no written support in the original specification including original claims and hence forms new matter. That pins or components thereof are welded onto other structures is a different issue.

3. **Claims 69-71** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation “each of the recesses being configured to receive the rod from a lateral direction....” in the independent claim does not find written support in the original specification including original claims and drawings. The limitation described at best a structural configuration of the final product capable of being made in a specific manner involving lateral approach of the rod, which is not disclosed and hence constitutes new matter.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claim 51** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The metes and bounds of the claimed invention are vague and ill-defined due to lack of adequate description through the introduction of new matter as set forth in section 1 above, rendering the claim indefinite.

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5. **Claim 53** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The metes and bounds of the claimed invention are vague and ill-defined due to lack of adequate description through the introduction of new matter as set forth in section 2 above, rendering the claim indefinite.

6. The term "rigidly" in **claims 55 and 56** is a relative term which renders the claim indefinite. The term "rigidly" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

7. **Claims 69-71** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The metes and bounds of the claimed invention are vague and ill-defined due to lack of adequate description through the introduction of new matter as set forth in section 3 above, rendering the claim indefinite.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. ***Claims 1, 3-10, 13-34, 48-50, 53-55, 57-58 and 69-71*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Machado et al (US 5,245,641) (made of record by applicant in IDS filed 6/17/04; item I) in view of Minshall et al (WO 00/72326 A1) (as first made of record by applicant in IDS filed 6/28/2007). N.B.: The rejection is provided subject to the noted indefiniteness under 35 U.S.C. 112, second paragraph, as set forth in sections 4-7, to the best of examiner's understanding.

Machado et al teach a container for storing or transporting spent nuclear fuel, the container comprising:

a plurality of tubes C ((Figure 4 and col. 3, l. 64 – col. 4, l. 2) that receive spent nuclear fuel assemblies, each tube 44 having four sidewalls 46, 48, 50, and 52 (loc.cit.)

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or walls 34/54 (col. 3, l. 50+ and col. 4, l. 9+), and four corners defining a rectangular cross section (Fig. 4), the four sidewalls forming a continuous inner sidewall (Fig. 4);

an attachment means for attaching respective pairs of a plurality of corners of the tubes to each other, the attachment means comprising a plurality of recesses in respective ones of the corners (said recesses formed by the interruption of 54 at the corners: see Figure 5) and a plurality of rods 68 (col. 4, l. 39-48) that are positioned between respective engaged ones of the corners (Figure 5), wherein each of the rods is a cylinder having a single cylindrical wall (namely: wire over the length of the L sections' gap or recess (loc.cit.), the cylindrical wall of each of the rods contacting at least two recesses associated with at least two of the tubes (Figure 5).

Machado et al do not necessarily teach the limitations

"at least one corner of a first one of the tubes engaging another corner of a second one of the tubes", "each engaging corner of the first and second ones of the tubes being formed from an intersection of a first sidewall and a second sidewall",

although they do teach the first and second sidewalls being normal to each other (Figure 5), and the first/second sidewall of the first one of the tubes and the second sidewall of the second one of the tubes being in substantial alignment to each other (Figure 5).

However, said limitations are nothing more than the result of a conventional hinge, having a barrel comprised by two knuckles extending from a separate leaf, as shown for instance by Minshall et al who, in a patent document on a container for storage and / or transport of nuclear fuel elements, hence analogous art, teach locking

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pin 50 through rods (= projections 19, or, alternatively, projections 19 with grooves 32, 33 and 42,43; in both cases in recesses 9 in the sidewalls) so as to cause the associated corners of the tubes 3 to engage in corners formed from an intersection of first and second sidewalls (for instance 5d and 6e or 5f and 6f; Figures 2-3), as a solution for the problem of how to join the parts of the container together. See p. 1, l. 12+. Minshall et al teach as advantage the reduction of welding (p. 1, l. 13+ and page 3, l. 22+) and improved ability to withstand loads (page 3, l. 14+). *Combination* of the teaching by Minshall et al in the invention by Machado involves only the replacement of spacer wire 68 and adjacent welds by rods formed by projections 19 with grooves 32, 33 and locking pins 50, a replacement one of ordinary skill in the art of connectors knows how to implement with high predictability of success. Furthermore, applicants do not disclose criticality in the manner in which the tubes are joined other than what is comprised in those advantages specifically disclosed by Minshall et al and discussed overhead, and other than through a mere hint at complying with NRC regulations, which is an obvious pre-condition for applying the invention at least within the USA, no specific other advantage or improvement of the invention as disclosed is indicated in the specification. Yet further, one of ordinary skill would deem it especially obvious to secure the connections between the cells C in Machado et al through a more comprehensive attachment means than cylindrical wires or rods 68 with welds if, as in the case of the embodiment of Figure 5, the distance between the cell walls at least initially is greater than the width or bore of the wire 68, because more static force is required in said embodiment than otherwise so as to force the cell sidewalls together.

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In conclusion, the claim would have been obvious as nothing more than the substitution of one known element for another to yield predictable results for the integrity of the container by reducing the adverse effects of welds and improved load distribution, as taught by Minshall et al and as also known by any of ordinary skill in the art of connectors. See MPEP 2141, section III, rationale B.

On claim 3: in the above combination of Machado et al and Minshall each of the first rods (19 with or without 32, 33) has an opening and the attachment means further comprises at least one pin 50, wherein the openings of at least one respective pair of the first rods mounted in respective ones of the recesses of the first and second ones of the tubes are axially aligned (Figures 2-3), wherein the at least one pin 50 is inserted through the openings of the at least one respective pair of the first rods (page 6, l. 25+).

On claim 4: In said combined invention, the rods further comprise at least one first rod and at least one second rods being (19; or 19 with 32, 33) (by Minshall et al), the at least one first rod being mounted in a corresponding at least one of the recesses (as defined by the corner areas devoid of 54 (Fig. 5 of Machado et al) of the first one of the tubes and the at least one second rod being mounted in a corresponding at least one of the recesses of the second one of the tubes, the at least one first rod engaging a respective one of the recesses of the second one of the tubes and the at least one second rod engaging a respective one of the recesses of the first one of the tubes when the first side wall of the first one of the tubes and the first side wall of the second one of the tubes are in substantial alignment, and the second side wall of the first one of the

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tubes and the second side wall of the second one of the tubes are in substantial alignment.

On claim 5: the container further comprises a first and second set of the tubes, wherein the second rods are mounted on the tubes of the first set, wherein each of the second rods of the first set of tubes engages a respective one of the tubes in the second set of tubes.

On claim 6: the further limitation defined by this claim fails to further limit the claimed invention, but instead merely defines “developed cell”.

On claim 7: in the combined invention the outward main surfaces of 34 meet the further limitation of this claim (see Figures 4-5 and description, col. 3, l. 28+).

On claim 8: the combined invention by Machado et al and Minshall as defined above teach a container for storing or transporting spent nuclear fuel, the container comprising:

a plurality of tubes C (see Machado et al, Figure 4) that receive spent nuclear fuel, each of the plurality of tubes having a continuous inner sidewall (Figure 4);

a plurality of first rods (= projections 19, with or without grooves 32, 33 of Minshall et al) being mounted at a point where each respective one of the tubes abuts against another one of the tubes (see Figures 4 and 5) , each of said first rods having an opening (opening through which pin 50 slides), wherein each respective one of the first rods is mounted in a recess (as defined above with reference to the recess formed

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by the incomplete coverage by elements 54 of the underlying main outer surface of 34 in particular) of both a first one of the tubes and a second one of the tubes, wherein each of the rods comprises at least one outer wall, the at least one outer wall of each of the rods contacting the recesses (at least indirectly) of both the first and second ones of the tubes;

at least one pin 50;

wherein the openings of respective ones of the first rods mounted on the first one of the tubes are substantially aligned with the openings of respective ones of the first rods mounted on the second one of the tubes (substantial alignment is in evidence because the pin 50 goes straight through said openings);

the at least one pin extends through the aligned ones of the openings of the first rods, thereby linking respective ones of the tubes together; and wherein each one of the respective ones of the first rods mate with a corresponding recess in the second one of the tubes when the openings of the respective ones of the first rods mounted in the recesses in the first one of the tubes are substantially aligned with the openings of the respective ones of the first rods mounted on the second one of the tubes (Figures 1-5 and p. 2, l. 5-10).

The obviousness argument as set forth for claim 1 holds verbatim also for this independent claim for the same reasons, herewith included by reference in its entirety.

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On claim 9: the at least one pin 50 is captured by one of the first rods 19. See Figures 3-5.

On claim 10: the at least one pin 50 comprises a head portion (the portion of 50 above projection 19; Figure 3, central pin) and a body portion (the remainder of 50), the body portion extending through the openings of the aligned ones of the first rods and the head portion resting against one of the first rods.

On claim 13: in the combined invention the first and second tubes are met by tubes C and O in Machado et al. See Figure 4 and col. 3, l. 47 – col. 4, l. 2).

On claim 14: each of the tubes has four sidewalls and four corners (Figure 4, col. 3, l. 47 – col. 4, l. 2) defining a rectangular cross section, the plurality of recesses (defined by 34/54 as explained in the rejection of claim 1) being formed in the corners of the tubes.

On claim 15: the tubes of Machado et al are arranged in an alternating pattern (see Figure 4) and are linked together in the corners (Figures 1-5), wherein a sidewall of a first one of the tubes is in substantial alignment with a sidewall of a second one of the tubes (Figures 4 and 5, and descriptions thereof).

On claim 16: the further limitation defined by this claim fails to further limit the claimed invention, but instead merely defines “developed cell”.

On claim 17: in the combined invention the outward main surfaces of 34 meet the further limitation of this claim (see Figures 4-5 and description, col. 3, l. 28+).

On claim 18: the combined invention as defined above also teaches a container for storing spent nuclear fuel, the container comprising: a plurality of tubes (C in Machado et al) that receive spent nuclear fuel assemblies, each of the tubes having a plurality of recesses (defined as described above, i.e., by recesses in 34/54) and a continuous inner sidewall (Figure 4); and with the substitution of wire 68 with welds of Machado et al by pins 50 and rods 19 as taught by Minshall et al, a plurality of first rods being mounted in respective ones of the recesses; and wherein at least one first rod mounted on a respective one of the tubes is attached to at least one of the first rods mounted on at least one second one of the tubes, thereby linking the respective one of the tubes and the at least one second one of the tubes together (see Figures 3-5), wherein each of the first rods is seated in both a first one of the recesses of the respective one of the tubes and a second one of the recesses of the at least one second one of the tubes, and each of the rods comprises at least one outer wall, the at least one outer wall of each of the rods contacting both the first and second ones of the recesses (see Figures 3-5).

The obviousness argument as set forth for claim 1 holds verbatim also for this independent claim for the same reasons, herewith included by reference in its entirety.

On claim 19: each of the first rods 19 has an opening and respective pairs of the first rods are attached to each other by axially aligning the openings of the respective pairs of the first rods and extending a pin 50 through the openings of each of the respective pairs of the first rods (Figures 1-5 in Minshall et al).

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On claim 20: the at least one pin 50 comprises a head portion (the portion of 50 above projection 19; Figure 3, central pin) and a body portion (the remainder of 50), the body portion extending through the openings of the aligned ones of the first rods and the head portion resting against one of the first rods.

On claim 21: the pin 50 by Minshall et al is captured by one of the first rods 19 (Figures 3-5).

On claim 22: each of the tubes C in Machado et al has four sidewalls and four corners defining a rectangular cross section (Figure 4), the recesses being formed along at least one of the corners of the tubes (recesses as defined by 34/54; see Figure 5 and discussion under claim 1 above) and the first rods 19 by Minshall et al being mounted in the plurality of recesses along the at least one of the corners of the tubes (C in Machado et al, 3 in Minshall et al) (note said corners are in the recesses defined by 34/54).

On claim 23: the tubes of Machado et al are arranged in an alternating pattern (see Figure 4) and are linked together in the corners (Figures 1-5), wherein a sidewall of a first one of the tubes is in substantial alignment with a sidewall of a second one of the tubes (Figures 4 and 5, and descriptions thereof).

On claim 24: the container of the combined invention further comprises at least one second rod being mounted in the recesses of respective ones of the tubes, the at least one second rod mounted in the recess of a respective one of the tubes

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engaging the recess of a remaining one of tubes when the tubes are linked together (see plurality of rods 19; Figures 1-5).

On claim 25: the plurality of tubes of the combined invention comprises a first set of tubes O (see Machado et al, Figure 4 and description) and a second set of tubes C (loc.cit.), wherein the connection in Machado et al is between tubes C, said connections in the combined invention comprising the second rods 19 which are mounted in each one of the tubes in the second set of tubes C.

On claim 26: the further limitation defined by this claim fails to further limit the claimed invention, but instead merely defines “developed cell”.

On claim 27: In the combined invention respective ones of the tubes includes a plurality of flat load bearing surfaces at the corners of the tubes (see flat load bearing surfaces of 34 in Figure 5: right-hand main surface of left-hand 34, and upper main flat portion of 34 on the right hand side), the plurality of flat load bearing surfaces on a respective one of the tubes engaging the flat bearing surfaces on a remaining one of the tubes (said engaging is direct in the combined invention in which there is no welding applied, and indirect in Machado et al).

On claim 28: The combined invention as defined above also teaches the container to comprise a plurality of tubes (C in Machado et al) that receive spent nuclear fuel rods, each of the tubes having four sidewalls forming a continuous inner sidewall (Figure 4 in Machado et al) and four corners defining a rectangular cross section (loc.cit.), each of the tubes having a plurality of recesses (formed by 34/54 as described

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above) along at least one of the corners (Figure 5) and a plurality of flat load bearing surfaces (outward main surfaces of 34) along at least one of the corners (Figure 5; Machado et al); a plurality of first rods (19 in Minshall et al) being mounted in the recesses of the tubes (because implemented in the corners), wherein respective pairs of the first rods are attached to each other (through pins 50), thereby linking the tubes together, and each of the first rods is seated in the recesses of two of the tubes (because located at the corners), wherein each of the rods comprises at least one outer wall (outer wall of 19), the at least one outer wall of each of the rods contacting the recesses of two of the tubes (being within the recesses); and wherein the tubes are linked to each other at the corners such that the flat load bearing surfaces on respective pairs of the tubes abut against each other (Figures 4-5).

The obviousness argument as set forth for claim 1 holds verbatim also for this independent claim for the same reasons, herewith included by reference in its entirety.

On claim 29: each of the first rods 19 in the combined invention includes an opening, wherein the openings of respective pairs of the first rods of adjacent ones of the tubes (vertically displaced rods, each of which can be said to belong to two abutting sidewalls) are aligned so that a pin 50 may be extended therethrough, thereby attaching the respective pairs of the first rods 19 together (see Figures 1-5 in Minshall et al).

On claim 30: the at least one pin 50 comprises a head portion (the portion of 50 above projection 19; Figure 3, central pin) and a body portion (the remainder of 50), the

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body portion extending through the openings of the aligned ones of the first rods and the head portion resting against one of the first rods.

On claim 31: the container of the combined invention further comprises at least one second rod being mounted in the recesses of respective ones of the tubes, the at least one second rod mounted in the recess of a respective one of the tubes engaging the recess of a remaining one of tubes when the tubes are linked together (see plurality of rods 19; Figures 1-5).

On claim 32: the container of claim 31, further comprises a first set of the tubes C and a second set of the tubes O, wherein the second rods 19 are mounted in each one of the first set of tubes C.

On claim 33: the further limitation defined by this claim fails to further limit the claimed invention, but instead merely defines “developed cell”.

On claim 34: the pin 50 is captured by one of the first rods 19.

On claim 48: Referring to the same combination of teachings as defined above (Machado et al modified through the substitution of welds and adjacent element 68 by the rods and pins 19 and 50, respectively), said combination also teaches an apparatus (spent fuel rack of Machado et al) for the storage and transport of spent nuclear fuel, comprising:

an array of tubes C (Machado et al, Figure 4 and col. 3, l. 29+) having a continuous inner sidewall (Fig. 4);

a container 14 (col. 3, l. 1+), wherein the array of tubes are disposed in the container (Figs. 4 and 7 and loc.cit.) and the array of tubes contacts at least one side wall of the container (Figure 10, showing contact of 14 with 34);

a plurality of couplings 50/19/19 or 50/19-32-33/19-32-33/ (Minshall et al, loc.cit. and page 6; Figures 1-7) between adjacent pairs of the tubes, wherein each of the couplings comprises:

a first rod 19 (or 19-32-33, upper 19 centrally in Figure 3 with or without associated 32/33 at the same altitude) disposed on a first one of the tubes;

a second rod 19 (element 19, etc., directly vertically underneath said first rod) attached to a second one of the tubes (note that each element 19 is attached to at least two tubes as shown by Figures 4-7);

the first rod being disposed in recesses formed in the outer surfaces of both the first and second ones of the tubes (because the rods are substitutes for element 68 positioned in recesses as defined above in relation to 34/54), and the second rod being disposed in the recesses formed in the outer surfaces of both the first and second ones of the tubes (loc.cit.),

wherein each of the first and second rods comprises at least one outer wall (see Figures 1 and 2), the at least one outer wall of each of the first and second rods contacting the recesses (because they replace elements 68 in Machado et al which contact the recesses as they are in said recesses) formed in the outer surfaces of both the first and second ones of the tubes (contacting is indirect in Machado et al through

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the presence of welds, while said welds are removed in the combination as defined above following Minshall et al);

the first and second rods each having an opening along a length of the first and second rods; and a pin (50 in Minshall et al, loc.cit.) extending through the openings of the first and second rods; and

wherein a horizontal bearing load applied to the array of tubes is transferred through the tubes and the couplings to the at least one side wall of the container (because the contact between said tubes and couplings and between said couplings and the at least one sidewall inherently causes any load applied to the tubes to be transferred to the couplings, and through the couplings to the at least one sidewall).

The obviousness argument as set forth for claim 1 holds verbatim also for this independent claim for the same reasons, herewith included by reference in its entirety.

On claim 49: each of the tubes further comprises a plurality of side walls, wherein at least one of the side walls of a respective one of the tubes and a side wall of a second one of the tubes are in substantial alignment (see Figure 4, tubes C, and Figure 5, where the sidewalls comprise elements 34 as sidewalls belonging to different tubes C but in substantial alignment).

On claim 50: in the combined invention as defined above, the apparatus of claim 48, wherein each of the tubes in the adjacent pairs of tubes C further comprise at least two side walls joined along a corner (according to the couplings as defined above and as taught by Minshall et al), and, (Examiner Note: sic: why the comma? See 112, 2nd

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above: comma is ignored in examination) a flat bearing surface disposed in at least a portion of the corner, wherein for each of the adjacent pairs of tubes, a first one of the flat bearing surfaces contacts a second one of the flat bearing surfaces (Figures 4-5 in Minshall et al).

On claim 53: the further limitation defined by this claim limits the method in which the apparatus is made, rather than the apparatus itself, except through possible inherent consequences of the method on structure. Specifically, the limitation is only of patentable weight in as much as the method steps distinguish the final structure, and to the extent not impacting final structure are taken to be product-by-process limitations and non-limiting. A product by process claim is directed to the product per se, no matter how they are actually made. See *In re Fessman*, 180 USPQ 324, 326 (CCPA 1974); *In re Marosi et al*, 218 USPQ 289, 292 (Fed. Cir. 1983), and *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985), all of which make clear that it is the patentability of the final structure of the product “gleaned” from the process steps that must be determined in a “product-by-process” claim, and not the patentability of the process. See also MPEP 2113. Moreover, an old or obvious product produced by a new method is not a patentable product, whether claimed in “product by process” claims or not. Reference is also made to the rejection under 35 USC 112, first and second paragraph, triggered by the introduction of matter not disclosed in the original specification including original claims, and as set forth above under sections 5 and x.

On claim 54: the recesses are formed in a plurality of corners in the outer surfaces of the tubes (Figure 5 in Machado et al, and in this respect loc.cit.).

On claim 55: The term “rigid” has not been introduced in the original specification in this regard, and hence the general meaning of “rigid” or rigidly” applied, which comprises the meaning “precise and accurate in procedure”, which certainly is met through the passage of the pin through said rods which is disclosed to cause the plates (sidewalls) to be “firmly interlocked” (p. 7, l. 17+ in Minshall et al).

On claim 57: the cross-sectional shape of the tubes is a square or rectangle (Machado et al, Fig. 4).

On claim 58: the array of tubes C forms a cell wherein the tubes are arranged in an alternating pattern in the cell (Figure 4 and description).

On claim 69: The combined invention by Machado et al and Minshall et al as defined in the discussion of claim 1, teaches an apparatus capable of being used for the dry storage and transport of spent nuclear fuel, comprising:

a plurality of tubes C disposed in a container 14, each of the plurality of tubes having a continuous inner sidewall 34/54 (Figure 4 in Machado et al));

a plurality of recesses as defined by the portions of the walls of the tubes not covered by 54 (Machado et al), each recess being formed in a wall 34/54 of a respective one of the tubes;

a plurality of rods (19 or 19 with grooves 32,33 (p. 6, l. 10+) according to Minshall et al), each rod being disposed within a first one of the recesses (see recesses as

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taught by Machado et al, and also recesses in Minshall et al (p. 2, l. 6+) formed in a first one of the tubes;

each of the rods has an outer wall that contacts a second one of recesses formed in a second one of the tubes when the tubes are assembled in the container (because the rods substitute for elements 68 in Machado et al without their welds adjacent thereto);
and

each of the recesses being configured (i.e., being structurally capable) to receive the rod from a lateral direction with respect to a longitudinal length of a respective one of the tubes to facilitate a horizontal assembly of the tubes to each other. Although this limitation limits a method of making within what has been formulated as a limitation of intended use, the capability of making the apparatus in the claimed manner is ensured by the possibility to apply the rods 19 as taught by Minshall et al by introducing them through lateral movement towards the sidewalls of the tubes in the recesses of the tubes C in Machado et al.

[Examiner Note: the limitation “configured to receive” generally indicates only that the structure is such as to render the claimed reception to be within the capabilities of the structure. Therefore, said limitation generally indicates structural configuration so as to be capable of performing an intended use. Applicant is reminded that intended use and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In re Casey,¹⁵²

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USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963). In the underlying case, the implied capability is not even pertinent to the final structure, but instead to an intermediate structure wherein the rod associated with any of the claimed recesses has not yet been placed in final position, but instead the recess is about to receive the rod. Therefore, the capability does not even pertain to the claimed apparatus but only to its method of making. In this regard applicant is reminded that the limitation “to receive from the rod” is only of patentable weight in as much as the method steps distinguish the final structure, and to the extent not impacting final structure are taken to be product-by-process limitations and non-limiting. A product by process claim is directed to the product per se, no matter how they are actually made. See In re Fessman, 180 USPQ 324, 326 (CCPA 1974); In re Marosi et al, 218 USPQ 289, 292 (Fed. Cir. 1983), and In re Thorpe, 227 USPQ 964, 966 (Fed. Cir. 1985), all of which make clear that it is the patentability of the final structure of the product “gleaned” from the process steps that must be determined in a “product-by-process” claim, and not the patentability of the process. See also MPEP 2113. Moreover, an old or obvious product produced by a new method is not a patentable product, whether claimed in “product by process” claims or not].

The obviousness argument as set forth for claim 1 holds verbatim also for this independent claim for the same reasons, herewith included by reference in its entirety.

On claim 70: in the combined invention, respective ones of the rods are attached to corresponding one of the recesses (this is true for the attachment of rods 68 with welds to the recesses in Machado et al, and is true for the combined invention wherein the rods 68 with welds are substituted by the rods of Minshall et al (see p. 6, l. 1-8); a plurality of pins 50; and where the respective one of the rods further comprise a socket to receive one of the pins (the openings of the rods meet “socket”).

On claim 71: in the combined invention each of the pins 50 are disposed into a pair of the sockets (two segments 19, e.g., Fig. 3). The limitation "to connect a respective pair of the tubes" limits intended use, not the structure and carries patentable weight only in as much as the apparatus is capable of performing said intended use, with reference to the above discussion of limitations of intended use: if the prior art structure is capable of performing the intended use, then it meets the claim. In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963). In the underlying case the pins so disposed do connect a respective pair of the tubes as they interlock "plates", i.e., sidewalls, of different tubes (e.g., 5 and 6) (see Minshall et al, p. 5, l. 22+).

9. **Claim 56** is rejected under 35 U.S.C. 103(a) as being unpatentable over Machado et al and Minshall et al as applied to claim 55 above, and further in view of Forterre (US 5,131,868). As detailed above, claim 55 is unpatentable over Machado et al in view of Minshall et al. Neither Machado et al nor Minshall et al teach the pin to at least one of the rods by a weld positioned so as not to be subject to the horizontal bearing load. However, although the pin 50 in the combined invention is not necessarily welded to the rods 19 it would have been obvious to one of ordinary skill in the art to provide additional axial stability to the pin-rod system through welding the pins to the rods because welding is a standard and utterly conventional method of locking separate structural component in position, and has long been recognized in the art of connectors and metal work as a reliable method to secure a pin in a passageway, as witnessed by Forterre (see col. 2, l. 3+ and his claim 3, e.g.). The axial locking thus achieved in the

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combined invention is completely independent from the force balance in the lateral direction that is determined by the pin-rod system as a whole, because the respective forces are orthogonal to each other. Furthermore, the very (and only) purpose of the locking pins 50 in Minchal et al is to keep the rods in place and aligned, i.e., to lock said rods in place. It would thus have been obvious to one of ordinary skill in the art to improve the locking achieved by the insertion of locking pins 50 by additionally welding said locking pins to the very structure they are to keep aligned, i.e., to the rods 19.

END OF GROUNDS OF REJECTION.

(10) Response to Argument

Regarding comments under A on page 6, the current examiner did not issue the Office action referred to by appellant. Even arguendo, the ground of rejection is quite different, being based on Loftus as primary reference while Loftus is not even cited in the appealed office action.

Appellant's first argument (pages 6-8) asserts that the Machado reference do not show that the four sidewalls form a continuous inner sidewall.

Examiner disagrees: according to the claim language the container comprises a plurality of tubes, each tube having four sidewalls the four sidewalls forming a continuous inner sidewall. Underscore added by examiner for emphasis. See claim 1, lines 1-5. Therefore, not all tubes necessarily need to meet the limitation on continuity of sidewalls, but instead it suffices when a sub-set does. The limitation on continuity of the four sidewalls is met for all C tubes. A fortiori, there can be no teaching away by Machado in light of Machado's very teaching of said continuity of the four sidewalls.

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Appellant's second argument (pages 8-9) asserts that the Machado reference does not teach the (or any) recesses (claim 1, line 9).

Examiner disagrees: following the contour of the sidewall in Figure 5 of Machado et al advanced by appellant in his argument and as cited by the Office action, there is an indentation or recess defined by the portion without the portions of element 54. Nothing in the specification justifies a narrowing of the limitation "recess", of a sidewall, as an indentation following the contour of a sidewall.

Appellant's third argument (pages 9-10) states that Minshall et al fail to disclose a tube structure wherein it is possible to have a continuous inner sidewall and teach away from the limitation on the continuity of the sidewalls.

Examiner disagrees with the validity of this argument because (a) Minshall et al was not even cited for the limitation on the continuity of sidewalls, but instead only to supplement Machado et al for those limitations for which Machado et al is inadequate while even arguendo, (b) Minshall et al, far from "teaching away", actually teach continuity of sidewalls because plates such as 5d and 6e not only abut but even merge completely: see Figure 5 in Minshall et al.

Appellant's fourth argument (page 10, central paragraph) states that "Minshall fails to disclose rods having opening that are recessed into the sidewall of a tube structure".

Examiner disagrees: noting first that independent claim 1 does not even recite the limitation quoted here by appellant, examiner also disagrees with the assertion

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because recesses are not what need to be taught from Minshall et al, given the recesses as disclosed by Machado.

Appellant's fifth argument (page 11) states that "the combination of the Machado reference with Minshall is improper, as the wall plates employed by Minshall would be incompatible with the L-shaped sections in the Machado reference".

Examiner disagrees: the wall plates by Minshall et al form just as much L-shaped section as the L-shaped section of Machado, as witnessed, for instance, by Figures 4-7.

Appellant's sixth argument (pages 11-12) alleges that Declarations were ignored.

Examiner disagrees: all three Declarations all been adequately responded to. The first, second and third Declarations contain no showing of evidence of either criticality or non-obviousness, whether for the rejections of most recent record at the time (Loftis and Hoover) or for the rejections as appealed, which are different. They do not even address specific claim language. Counter to appellant's allegation of failure to review said declarations is not true: see discussion of the Declarations under "Response to Amendment" of the Office actions following directly the filing of said Declarations. They contain no evidence of superiority of the invention over the prior art, *a fortiori* not evidence of superiority of the invention over the prior art pertinent to the appeal.

Regarding appellant's argument on claim 5, examiner refers to claim 4 on which claim 5 depends, for an extensive discussion complete with references, whereby it is unnecessary to provide more information.

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Appellant's argument on claim 7 alleges that reference numeral 34 does not include a plurality of load bearing surfaces at the corners, but refers to L-shaped sections.

Examiner disagrees: element 34 does include a plurality of load bearing surfaces at the corners (see also Figure 6 and col. 4, l. 33-65).

Appellant's argument regarding the rejections of claims 8-10 and 13-17 are exclusively dependent upon those advanced in appeal of claims 1 and 3-7, in fact, only those directed to claim 1, and accordingly examiner disagrees for the same reasons as provided above.

Appellant's argument regarding the rejections of claims 18-27 are exclusively dependent upon those advanced in appeal of claims 1 and 3-7, in fact, only those directed to claim 1, and accordingly examiner disagrees for the same reasons as provided above.

Appellant's argument regarding the rejections of claims 48-51 and 53-58 are exclusively dependent upon those advanced in appeal of claims 1 and 3-7, in fact, only those directed to claim 1, and accordingly examiner disagrees for the same reasons as provided above.

Appellant's argument regarding the rejections of claims 69-71 are exclusively dependent upon those advanced in appeal of claims 1 and 3-7, in fact, only those directed to claim 1, and accordingly examiner disagrees for the same reasons as provided above.

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Appellant's comments on Objections to the Drawings are not pertinent to the appeal, because drawings are petitionable, but not appealable. However, examiner notes that appellant is of the apparent opinion that the rejections under 35 USC 112 all are based on the Drawings objections, which is not true. Examiner respectfully refers to the grounds of rejections under 35 U.S.C. 112, first and second paragraphs, as set forth in the appealed Office action.

For all of the above reasons examiner believes that the grounds of rejection as set forth in the appealed Office action should be affirmed.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

Respectfully submitted,

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